

# PATENT SPECIFICATION

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## (54) A DEVICE FOR TRANSFERRING SLAUGHTERED POULTRY

(71) We, STORK BRABANT B.V., a Netherlands limited liability company, of 43a, Wim de Körverstraat, Boxmeer, the Netherlands, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a device for transferring slaughtered poultry from a first conveyor track to a second conveyor track.

In particular cases it is required, for example in connection with the layout of a poultry processing plant or with the order in which particular treatments should be performed, that poultry, which hanging by its legs is passed through the plant, is transferred from one conveyor track to another conveyor track. It is evident that for this operation it is required that an operator is continuously active.

The present invention provides a device for transferring slaughtered poultry from a first conveyor track to a second conveyor track, the poultry being movable along the first and second conveyor tracks by means of respective shackles from which the poultry is suspended by its legs, the device comprising a guide for suspension shackles disposed along a part of the first conveyor track, a further guide for suspension shackles disposed along a part of the second conveyor track, a transfer guide for the legs of the poultry arranged between the said parts of the first and second conveyor tracks, the first end of which transfer guide terminates in the vicinity of the first conveyor track such that at that location the poultry can move from a suspension shackle into the transfer guide, while at the second end of the transfer guide are mounted a stop and an ejector controlled by a shackle detector arranged along the second conveyor track, the arrangement being such that when an empty shackle on the second conveyor track passes the said shackle detector then the ejector urges the poultry from the transfer guide onto the said empty shackle. The transfer guide preferably extends for a part of its length parallel to and underneath the first con-

veyor track such that the legs of the poultry which is being conveyed along the first conveyor track are introduced into the end of the transfer guide. In the proximity of the location between the part of the transfer guide which is parallel to the first conveyor track and the part of the transfer guide which is at right angles to the first conveyor track the guide for the suspension shackles may be suitably provided with a part turned away from the transfer guide. In an alternative arrangement, the first end of the transfer guide preferably terminates adjacent an ejector controlled by a shackle detector arranged along the first conveyor track such that when a suspension shackle passes the shackle detector then the poultry suspended from the shackle is urged into the transfer guide by the ejector. Each guide may conveniently comprise two rod-shaped members spaced a short distance from one another, the spacing between the two members comprising the transfer guide being adjustable.

The first conveyor track may be suitably situated at a higher level than the second conveyor track, whereby the poultry may move, under gravity along the transfer guide from the first conveyor track to the second conveyor track. Alternatively, driving means for driving the poultry along the transfer guide may be arranged along at least a part of the length of the transfer guide. The stop and the ejector at the second end of the transfer guide are preferably coupled to each other and are rotatable about an axis perpendicular to the plane through the transfer guide.

The invention provides a simple device which is reliable in service and which can be easily adapted to existing apparatus for mechanically transferring slaughtered poultry from a first conveyor track to a second conveyor track.

The invention will be further described, by way of example only, with reference to the accompanying drawings, in which:—

Fig. 1 is a diagrammatic plan view of a first embodiment of the device according to the invention;

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Fig. 2 is a diagrammatic cross-section through the device shown in Fig. 1; and

Fig. 3 is a diagrammatic plan view of a second embodiment of the device according to the invention.

In Figure 1 a first conveyor track for slaughtered poultry is represented in outline and denoted by reference numeral 1. Along this conveyor track poultry hanging by its legs on suspension shackles known *per se* is advanced in the direction of the arrow 2. A broken line 3 represents diagrammatically a second conveyor track along which the poultry hanging on shackles is to be likewise advanced, e.g. in the direction of the arrow 4.

The device according to the invention is intended to transfer the poultry from the conveyor track 1 to the conveyor track 3, which may be necessary for example in case of a particular layout and arrangement of a mechanical poultry slaughter house.

Arranged along the conveyor track 1 are two guides 5, 6 extending in the longitudinal direction thereof and each having a bent inlet end 7, 8. The guides 5, 6 serve for guiding suspension shackles 9 in such a way that they are prevented from swinging. In a corresponding way guides 10, 11 for the shackles which move along the conveyor track 3 are arranged along the latter, one of these shackles being diagrammatically represented and denoted by the reference numeral 12.

Transfer guides 13, 14 are arranged between a pair of guides 5, 6 on the one hand and a pair of guides 10, 11 on the other hand. The guide 14 is supported by adjusting members 15a, 15b so that the distance between the guides 13, 14 can be related to the dimensions of the poultry to be processed. This distance is in practice adjusted in such a manner that the poultry loosely hanging by its legs between the guides 13, 14 can move from a suspension shackle on the track 1 to a suspension shackle on the track 3. The conveyor track 1 is at a higher level than the conveyor track 3. When the bird has landed between the guides 13, 14 then it glides further, under the force of gravity, along these guides.

The ends of the guides 13, 14 which are turned to the conveyor track 1 end under the guides 5, 6 at the level of the suspension shackle 9. The other ends of the guides 13, 14 end at the level of the suspension point of the poultry in a shackle 12 hanging from the track 3.

In the proximity of the end of the guides 13, 14 which is turned to the guides 5, 6 is an ejector 16 driven by a driving cylinder 17, and in the proximity of the other end is a stop 18 with an ejector 19 driven by a driving cylinder 20. The stop 18 and the ejector 19 are interconnected and the whole can turn about an axis perpendicular to the plane through the transfer guides 13, 14. In the

proximity of the conveyor track 1 is a feeler 21 which is coupled to a device 22 for producing a control signal for the driving cylinder 20.

The device described above operates as follows:

When the shackle 9, from which the bird 25 is suspended by its legs, arrives at the feeler 21 then the device 22 emits a control signal for the driving cylinder 17. The latter presses the ejector 16 to the mouth of the guides 13, 14, whereby the bird 25 is urged from the shackle 9 and by its legs lands between the guides 13, 14. The bird then glides further into the position denoted by the reference numeral 25a and comes to bear against the stop 18. When an empty shackle moving along the conveyor track 3 passes by a feeler 23 then a device 24 emits a control signal for the driving cylinder 20, whereby the stop 18 turns to the right and out of the way, and the ejector 19 is engaged behind the legs of the bird and urges the same into the shackle 12. In this fashion the bird is transferred from the one conveyor track to the other.

In the above embodiment the poultry moves along the transfer guides 13, 14 under the force of gravity and to that end the conveyor track 1 is located at a higher level than the conveyor track 3. It is, however, also possible to mount conveyor belts like those denoted by reference numerals 27 and 28 along these guides 13, 14, which are slung over the rollers 29 to 32 and driven at a suitable speed. In that case the device is also suitable to transfer poultry from a conveyor track 1 to a conveyor track 3 situated at the same or at a higher level.

Figure 3 shows an embodiment which is similar to the embodiment shown in Figure 1, but wherein the poultry is not moved into the transfer guide by an ejector but automatically introduced thereinto.

Figure 3 shows a first conveyor track 41 along which poultry, hanging by its legs on shackles, is advanced in the direction of the arrow 42 and a second conveyor track 43 along which the poultry, likewise hanging on shackles, is advanced in the direction of the arrow 44. The poultry should therefore be transferred from the conveyor track 41 to the conveyor track 43.

Two guides 45, 46 extending in a longitudinal direction along the conveyor track 41 are provided with bent inlet ends 47, 48, respectively. Suspension shackles 49 are guided by these guides in such a fashion that they are prevented from swinging. Guides 50, 51 for suspension shackles 52 are also provided along the conveyor track 43.

Between the guides 45, 46 on the one hand and the guides 50, 51 on the other hand are arranged transfer guides 53, 54. The guide 54 is supported by adjusting members 55a,

55b, so that the distance between the guides can be adjusted at will. The conveyor track 41 may be at a higher level than the conveyor track 43, so that the poultry moves between the guides 53, 54. It is also possible to mount a pair of conveyor belts as indicated in Figure 1 along these guides. These are, however, not represented in Figure 3.

The guides 53, 54 have inlet parts 56, 57 respectively with outwardly bent ends 58, 59 respectively; these parts are located under the guides 46, 45 respectively and are for a part of their length parallel thereto. Due to this shape the leg of the bird is urged to move between the guide parts 56, 57 and in bent bridge parts 56a, 57a the legs are urged from the shackle. The bird moves then with its legs fitting between the guides 53, 54 to the other end thereof.

In the proximity of the other end of the guides 53, 54 are a stop 60 and an ejector 61 driven by a driving cylinder 62. The stop 60 and the ejector 61 are interconnected and the whole can turn about an axis perpendicular to the plane through the transfer guides 53, 54. A feeler 63 is disposed in the vicinity of the conveyor track 43, and is coupled to a device 64 for emitting a control signal for the driving cylinder 62.

When a bird hanging on a shackle reaches the inlet ends 58, 59 of the guide parts 56, 57 then, in the bridge parts 56a, 57a between the guide parts 56, 57 on the one hand and the guides 53, 54 on the other hand, the legs of the bird are urged from the shackle and the bird moves, hanging by its legs between the guides 53, 54, towards the stop 60.

When an empty shackle moving along the conveyor track 43 passes by the feeler 63 the device 64 emits a control signal for the driving cylinder 62 whereby the stop 60 turns to the right, and the ejector 61 is engaged behind the legs of the bird to press the same into the shackle 52.

#### WHAT WE CLAIM IS:—

1. A device for transferring slaughtered poultry from a first conveyor track to a second conveyor track, the poultry being movable along the first and second conveyor tracks by means of respective shackles from which the poultry is suspended by its legs, the device comprising a guide for suspension shackles disposed along a part of the first conveyor track, a further guide for suspension shackles disposed along a part of the second conveyor track, a transfer guide for the legs of the poultry arranged between the said parts of the first and second conveyor tracks, the first end of which transfer guide terminates in the

vicinity of the first conveyor track such that at that location the poultry can move from a suspension shackle into the transfer guide, while at the second end of the transfer guide are mounted a stop and an ejector controlled by a shackle detector arranged along the second conveyor track, the arrangement being such that when an empty shackle on the second conveyor track passes the said shackle detector then the ejector urges the poultry from the transfer guide onto the said empty shackle.

2. A device as claimed in Claim 1 wherein the transfer guide extends for a part of its length parallel to and underneath the first conveyor track such that the legs of the poultry which is being conveyed along the first conveyor track are introduced into the end of the transfer guide.

3. A device as claimed in Claim 2 wherein in the proximity of the location between the part of the transfer guide which is parallel to the first conveyor track and the part of the transfer guide which is at right angles to the first conveyor track the guide for the suspension shackles is provided with a part turned away from the transfer guide.

4. A device as claimed in Claim 1 wherein the said first end of the transfer guide terminates adjacent an ejector controlled by a shackle detector arranged along the first conveyor track such that when a suspension shackle passes the said shackle detector then the poultry suspended from the shackle is urged into the transfer guide by the said ejector.

5. A device as claimed in any of Claims 1 to 4 wherein each guide comprises two rod-shaped members spaced a short distance from one another, and wherein the spacing between the said two members comprising the transfer guide is adjustable.

6. A device as claimed in any of Claims 1 to 5 wherein the first conveyor track is situated at a higher level than the second conveyor track, whereby the poultry may move under gravity along the transfer guide from the first conveyor track to the second conveyor track.

7. A device as claimed in any of Claims 1 to 5 wherein driving means for driving the poultry along the transfer guide are arranged along at least a part of the length of the transfer guide.

8. A device as claimed in any of Claims 1 to 7 wherein the stop and the ejector at the said second end of the transfer guide are coupled to each other and are rotatable about an axis perpendicular to the plane through the transfer guide.

9. A device for transferring slaughtered poultry substantially as herein described with

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reference to, and as shown in, Figures 1 and 2 of the accompanying drawings.

- 5 10. A device for transferring slaughtered poultry substantially as herein described with reference to, and as shown in, Figure 3 of the accompanying drawings.

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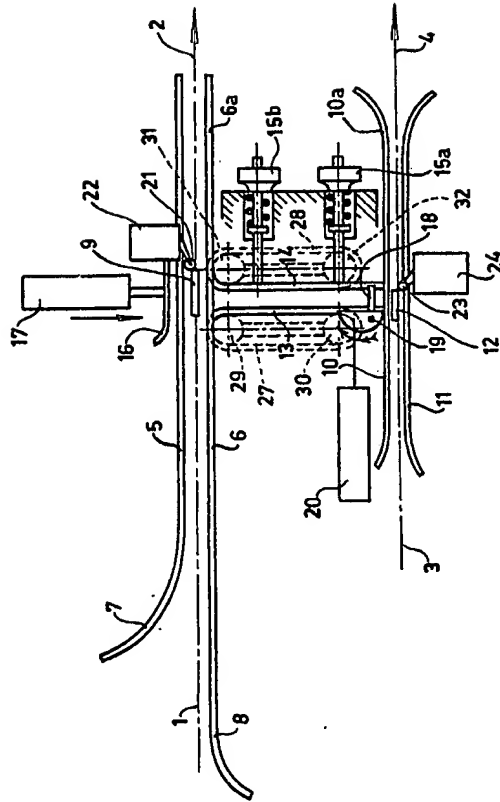
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COMPLETE SPECIFICATION

3 SHEETS

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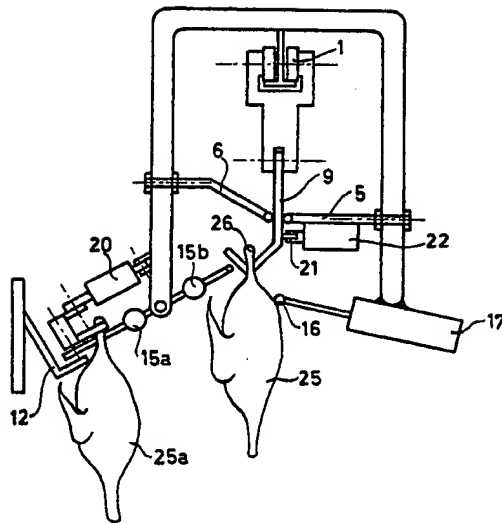
**FIG. 1.**

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Sheet 2



**FIG. 2.**

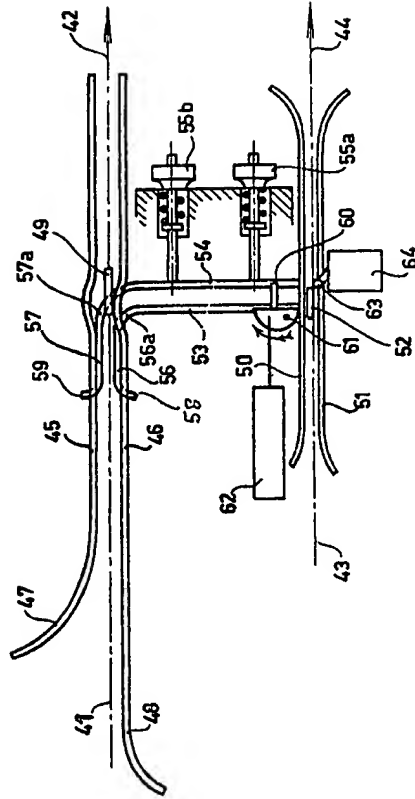
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Sheet 3



**FIG. 3.**